Rotation speed monitor
1-channel
MS24-R

Power
Pulse monitoring
Adjustable factor
Switching status

Setpoint

Start-up time delay
Start-up monitoring
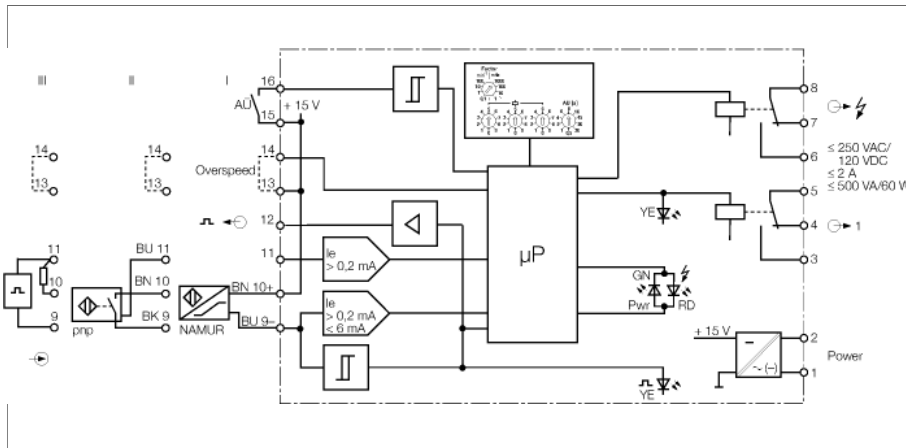
The rotation speed monitor MS24-R monitors pulse frequencies according to over and un-derrange of a programmed limit value.

The device is controlled via 3-wire pnp sen-sors, sensors acc. to EN 60947-5-6 or sig-nal sources with pulse levels of 10…30 VDC. If NAMUR sensors are connected (I) the in-put circuits are monitored for wire-break and short-circuit.

In case of error, the 2-color LED changes from green to red, the relay (3…5) and the alarm relay (6…8) are de-energized independently from the programmed output mode. The yel-low LED for input signals indicates wire-break and short circuit (wire-break: LED off). In case 3-wire sensors are used (II), only the wire-break function for the power cable is active.

Wire-break and short-circuit at the sensor out-put cable are not detected.

To connect external signal sources (III) use teminals 11 and 9. To suppress short-circuit messages, a 1…10 kΩ resistor must be con-nected between terminals 10 and 11.

The bridge at terminal 13/14 enables *over-speed monitoring*: In case of overspeed the limit value relay is de-energized. Without bridging *underspeed monitoring* is activated: In case of underspeed the limit value relay is de-energized.

In *overspeed monitoring mode* a start-up de-lay can be programmed for the drive. Dur-ing this period the limit value relay is ener-gized, preventing this way underspeed indica-tion and system shut-down during the start-up phase. The start-up delay is activated via a potential-free contact at the terminals 15/16 or by applying power to the bridged terminals 15/16.

In *overspeed monitoring mode* missing pulses are detected if dynamic input circuit monitor-ing is connected. For this purpose a monitor-ing period is programmed which is activated by each incomming pulse. If no pulse is reg-istered during this period, the limit value and the common alarm relay are de-energized. Dynamic input circuit monitoring is activated via a potential free contact at the terminals 15/16 or by applying power (terminals 15/16 are bridged).
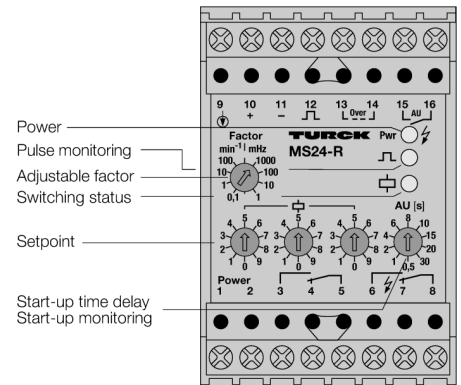
- Monitoring range: 10 mHz… 1 666 Hz (0.6…100 000 $^{min-1}$)
- Line monitored for wire-break/short-circuit
- 1 limit value relay and 1 alarm relay
- Setting of digital limit values in Hz or min^{-1}
- Start-up bypass activatable for underspeed monitoring
- Dynamic monitoring of input circuit, activat-able for overspeed monitoring
- Removable terminal blocks
- Excellent temperature stability and re-peatability
- Two sealed relays with hard gold contact (1 x limit value, 1 x alarm)
- Complete galvanic isolation
- Input reverse-polarity protected

Type	MS24-R
ID	0519009

Nominal voltage	Universal voltage supply unit
Operating voltage	20…250 VAC
Frequency	40…70 Hz
Operating voltage U_B	20…250 VDC
Power consumption	$\leq$ 3 W

Monitoring range/Setting range	0.06…100,000 rpm
Max. input frequency	150000 min^{-1}
Pulse time	$\geq$ 0.02 ms
Pulse pause	$\geq$ 0.02 ms
NAMUR input	
NAMUR	EN 60947-5-6
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	$\leq$ 50 Ω
Switch-on threshold	1.4 mA
Switch-off threshold	1.8 mA
Wire breakage threshold	$\leq$ 0.15 mA
Short-circuit threshold	$\geq$ 6.4 mA
3-wire input	
No-load voltage	15 VDC
Current	$\leq$ 30 mA
0-signal	0...3VDC
1-signal	5...30 VDC
External signal source	
0-signal	0…3 VDC
1-signal	5…30 VDC
Input resistance	26000 Ω

Output circuits	
Output circuits (digital)	2 x relays (change-over)
Output switching voltage relay	$\leq$ 30 VDC / $\leq$ 250 VAC
Switching current per output	$\leq$ 2 A
Switching capacity per output	$\leq$ 500 VA/60 W
Switching frequency	$\leq$ 10 Hz

Semiconductor output circuits	
Feed-forward pulse output	
Voltage	$\leq$ 14 V
Current	$\leq$ 10 mA

Response characteristic	
Temperature drift	$\leq$ 0.005 % of full scale/K

Galvanic isolation	
Test voltage	2.5 kV RMS

Displays/Operating elements	
Operational readiness	Green
Pulse input	Yellow
Switching state	Yellow
Error indication	red
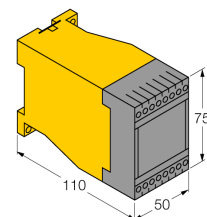
Dimensions

Output relay – Electrical lifetime

Edition • 2025-02-28T14:32:02+01:00

Hans Turck GmbH & Co.KG • D-45472 Mülheim an der Ruhr • Witzlebenstraße 7 • Tel. 0208 4952-0 • Fax 0208 4952-264 • more@turck.com • www.turck.com 2 / 4
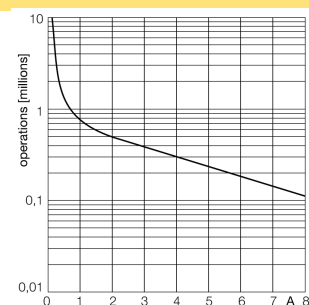
Mechanical data	
Protection class	IP20
Ambient temperature	-25…+60 °C
Dimensions	75 x 50 x 110 mm
Weight	247 g
Mounting instructions	DIN rail (NS35) or panel
Housing material	Plastic, Polycarbonate/ABS
Electrical connection	2 × 8-pin removable terminal blocks, reverse polarity protected, screw terminal
Terminal cross-section	1 × 2.5 mm²/2 × 1.5 mm²

Accessories

Type code	Ident-No.		Dimension drawing
WM1 WIDER-STANDSMODUL	0912101	The resistor module WM1 meets the requirements for line monitoring between a mechanical contact and a TURCK signal processor. The input circuit of the signal processor is designed for sensors acc. to EN60947-5-6 (NAMUR) and equipped with a wire-break and short-circuit monitoring function.	